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# Policy Recommendations to Improve Selected American Industrial Base Capabilities

Colonel  
**Richard A. Lien**  
U.S. Air Force

*Faculty Research Advisor*  
Captain Fred L. Meyer, USN

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## EXECUTIVE SUMMARY

The Joint Staff Director of Logistics (J-4) sponsored an Industrial College of the Armed Forces (ICAF) project to identify policy options to strengthen the nation's industrial base. To answer the tasking, a two phased approach was taken. First, the recommendations of the past five years of the ICAF Defense Industry Study (DIS) Program were examined. In this program, ICAF students conducted field studies at domestic and foreign locations to assess the strengths and weaknesses in the defense industrial base. Second, executives in several trade associations were interviewed and asked, "What policy options should the nation pursue to strengthen the industrial base?"

In this paper, five defense industries were examined. Their status follows:

Sealift: uncompetitive, in final stages of decline

Electronics: uncompetitive, in final stages of decline

Nuclear: in limbo, steady decline

Space: surviving, but stiff competition from Europe and Japan

Aircraft/Airlift: maintaining global leadership, but market share declining due to foreign competition

Based on the recommendations of the DIS Program and the trade associations, the following policy options to strengthen the industrial base are offered:

1. Department of Defense

- a. Allow joint use of selected military airfields
- b. Encourage civilian use of the global positioning system
- c. Insist on design specifications
- d. Revise the policy on recoupment of research, development, test and evaluation (RDT&E) costs
- e. Lengthen competition in the acquisition process
- f. Terminate programs whose primary mission has diminished

2. Congress

- a. Relax laws to allow DoD research and development to be shared with industry
- b. Encourage global trade

3. The Administration

- a. Recognize selected industries as national assets
- b. Encourage foreign sales by reducing trade barriers

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## CHAPTER I

### INTRODUCTION

In the fall of 1991, the Joint Staff Director of Logistics (J-4) sponsored an Industrial College of the Armed Forces (ICAF) project to identify policy options to strengthen the nation's industrial base.

This paper looks at five industries--aircraft, space, nuclear, sealift/airlift, and electronics to identify common industry deficiencies. In the course of the investigation, it is the author's opinion that the sealift and electronics industries have been allowed to diminish to the point where their competitiveness on the world market is questionable. For all practicable purposes, both industries are in the final stages of decline.

The nuclear industry is in a state of limbo and gradual decline. No new facilities have been constructed since 1978, and, as yet, the nation has not found a politically acceptable solution for the long-term storage of nuclear waste.

The space industry is surviving due to the Space Shuttle and satellite launch missions. However, commercial competition will increase from France, Germany, and Japan.

Only the aircraft and airlift industries maintain global leadership. However, global competition is steadily increasing and gaining market share.

By adopting the proposed policy options, the author believes several of the industries can be strengthened.

## CHAPTER II

### BASIS FOR CONCERN

"America woke up last week and discovered it has been in a 15-year decline."<sup>1</sup> This is hardly anything new for those involved with the defense industrial base. Recent events have exacerbated the rate and the extent of the decline.

### The Economy

As of this writing, the United States has been in a recession since June of 1990. Manifestations are many--a growing budget deficit, a growing trade deficit, an unemployment rate of over seven percent, and more bankruptcies annually than since the Great Depression. One of the reasons that triggered the slide was radical defense budget cuts demanded by the United States Congress.<sup>2</sup> With the apparent end of the Cold War and the political, economic, and geographic breakup of what was the Soviet Union into a Commonwealth of Independent States, there has been a stampede to reduce the military forces of the United States by as much as fifty percent over the next five years. Commensurate with the force reductions have been cries to terminate many of the nation's most advanced weapon system programs.

### Industrial Decline

The effects on the defense industrial base have been devastating. While more than 138,000 firms were doing business with the Department of Defense (DoD) ten years ago, more than

20,000 have gone bankrupt and another 60,000 have stopped dealing with the DoD altogether.<sup>3</sup> The danger, of course, is that the defense industrial base will shrink to the point where there are few suppliers of critical items. Multiplied by hundreds or thousands of times, the magnitude of the problem becomes clearer. And when all the remaining sources are located on foreign soil, the picture appears in sharp focus.

## CHAPTER III

### ICAF OBSERVATIONS

Through the ICAF Defense Industry Study (DIS) Program, many of the above problems were identified years ago and corrective actions were recommended when the problems were in their infancy. Since the early 1960s, all ICAF students have conducted field studies at domestic and foreign locations to assess the strengths and weaknesses in the defense industrial base. Following their travels, the students published their findings, prepared oral briefings to the ICAF student body, and offered conclusions and recommendations. For the most part, the DIS results were reported year after year. However, this paper provides the first cross year analysis of the DIS Program. The analysis provides 1) the perspective of time, and 2) the relevance of former recommendations in a drastically changing environment.

What follows are the ICAF DIS recommendations between 1987 and 1991 that apply to the Aircraft Industry. I have chosen this industry because 1) it is illustrative of the industrial base as a whole, and 2) it can benefit the most from the recommended policy options. (Appendices A through D highlight the ICAF DIS recommendations for the Space, Nuclear, Sealift/Airlift, and Electronics industries). Their sources are from the same documents listed in the endnotes for the aircraft industry.

## 1987 Aircraft DIS Recommendations<sup>4</sup>

### 1. Aircraft Markets

- Some of the best possible market characteristics include up-front funding for R&D, financial incentives for capital investment and assured minimum production amounts.

- Also required are government support for military export sales, reduced interference in the manufacturing process and more competition.

### 2. Aircraft Industrial Mobilization Plan

- Also requiring some fundamental changes are national security planning, military organization and the defense acquisition procedure.

- The lack of specific surge and mobilization requirements is at the heart of the industry's planning limitations.

- To correct these shortcomings in the evaluation process the government must decide to what type, level, and duration the conflict it wants industry to be able to respond.

## 1988 Aircraft DIS Recommendations<sup>5</sup>

### 1. Research & Development Expenditures

- Independent R&D could be stimulated through changes in DoD acquisition policies to more fully reimburse firms for independent research.

- Changes in tax laws could provide, for example, credits for such investment.

- The government can foster development of new

technologies directly by providing funding for major programs such as the National Aerospace Plane.

## 2. Modernization

- The government can support key manufacturing technology and processes directly through programs such as the Air Force's Technology Modernization Program.

- The government can stimulate private investment in capital equipment by providing incentives to industry such as reviving the investment tax credit.

## 3. Government Acquisition Policies

- The aircraft industry should be treated as a national resource.

- DoD should revise its acquisition policy so that the effects of particular acquisition decisions on the industrial base are included among the factors considered in making the decision.

## 4. Trade Policies

- The U.S. government should make every effort to secure fair and open trade in aircraft.

- It should work towards vigorous enforcement of the General Agreement on Tariffs and Trade (GATT).

- It should also seek to expand the signatories to GATT to include all aircraft-producing nations.

- Also, the government should provide adequate export

credit financing to U.S. firms to place them on an equal competitive footing with foreign firms.

#### 1989 Aircraft DIS Recommendations<sup>6</sup>

##### 1. Investment Capital

- Adopt financial measures such as tax incentives that encourage industry to make capital investments to improve productivity and to maintain U.S. technological leadership.

##### 2. Acquisition Practices

- Adopt policies, such as multi-year funding and biennial budgets, that promote industry stability, encourage long-term planning, and provide industry a known rate-of-return on investment.

- Streamline the oversight process to reduce the number of DoD personnel assigned to oversee the manufacture of military aircraft.

- Similarly, reduce the data reporting requirements imposed on industry by DoD.

##### 3. Offsets

- Develop a formal, coordinated policy for dealing with offset agreements. This policy should establish an effective working arrangement among relevant U.S. government agencies (particularly Commerce and DoD), and it should encourage reciprocal offsets for major sales of foreign aerospace products in the U.S. (e.g., Airbus).

#### 4. Technology Transfer

- Establish a realistic attitude toward technology transfer. This must recognize the internationalization of aircraft technology, differentiate between technology that is unique and sensitive to U.S. industry (which, therefore, must be protected) and that which is available elsewhere, and recognize the economic benefits that can accrue to U.S. companies and U.S. balance of payments through the sale of U.S. technology.

#### 1990 Aircraft DIS Recommendations<sup>7</sup>

##### 1. Government Policies

- At the national level an agency should coordinate national and/or international economic policy issues. The agency is unimportant (Department of Commerce, NSC, etc.).

- In addition, serious consideration must be given to the revision of U.S. anti-trust laws that only U.S. industry (not just the aircraft industry) must abide by in the international market place.

##### 2. DoD Actions

- DoD must recognize that a single policy for all sectors and tiers is sometimes unwise.

- A second DoD action should be to establish a permanent body with the mission of developing expertise, procedures and methods to evaluate and comment upon non-DoD proposed policies (for example tax policies) and their impact upon elements of industry that are critical to the DoD.



- Many special and unique military requirements have caused many companies to completely divorce their military and civilian sector work. The result is a direct inefficiency to the company and ultimately therefore an inefficiency to the DoD. Immediate action should be initiated by DoD to eliminate unneeded requirements of this nature.

- DoD must begin to make acquisition decisions with a broad view toward the industry as a whole, versus the program by program approach so often taken in the past.

### 3. Budgetary Considerations

- First, DoD should establish a policy completely segregating production decisions from R&D decisions (i.e., no production options on R&D proposals).

- DoD needs to initiate a study to identify items that are critical for surge across several systems and then examine the impact of multiple concurrent demands.

### 4. European Community (EC) 92

- We recommend a further study to examine the European transportation industry to determine the impact of the use of non-aviation transportation for most short range intra-European travel upon various industries in and out of Europe.

## 1991 Aircraft DIS Recommendations<sup>8</sup>

### 1. DoD and Congress

- DoD and Congress must analyze the impact on industry of changes in acquisition policies and tax laws before these are implemented.

## 2. Teaming

- We must expect and encourage the increased use of teaming.

## 3. Technology Transfer

- We must expect and allow technology transfer to take place between U.S. and foreign companies. This does not include critical technologies vital to national security. However, the technology transfer rules cannot be so restrictive that American firms are unable to compete on an equal footing with foreign firms.

## 4. Research & Development

- We need to look at ways to provide increased incentives for companies to capitalize and conduct R&D. Government may have to fund capital projects up front as a means of having the capability available.

## Common Deficiencies

There are only two areas that have received recommendations three or more times in the past five years:

1. Financial incentives for capital investment (87,88,89, and 91), and

2. Revise acquisition policy (88,89, and 91).

These are the only common threads in the DIS summaries since 1987. At this juncture, it is appropriate to investigate possible recommendations from a different angle.

## CHAPTER IV

### INDUSTRY OBSERVATIONS

By the winter of 1991, it was obvious to me that I needed to leave library research behind. Revolutionary world events were occurring too rapidly. Old world values and predictions had crumbled. Almost everything in print was obsolete.

In my quest, I sought the ideas of the representatives of the aircraft industry--the trade associations with offices in the Washington, D.C. area. One contact led to another. It became clear to me that many had anticipated the impacts of world change and were acting upon them. But, the current recession was preventing most from making headway. All were struggling to survive.

It was in this atmosphere that I asked them, "What policy options should the nation pursue to strengthen the industrial base?" Here are the results.

#### National Business Aircraft Association (NBAA)<sup>9</sup>

1. Joint Use of Military Airfields.
2. DoD Should Transfer R&D Technology to the Civilian Side.
3. Civilian Use for Global Positioning System (GPS).
4. Heads-up Display for Civilian Aircraft.

#### Requirements and Technical Concepts for Aviation (RTCA)<sup>10</sup>

1. DoD Must Find a Way to Work with Civilian Industry.
  - a. Share development costs.
  - b. Share production costs.

2. Heads-up Display for Civilian Aircraft.
  - a. Alaska Airlines has it today.
  - b. While others are grounded due to weather, Alaska Airlines flies and earns a profit.
3. Civilian Use for Global Positioning System (GPS).
  - a. Satellite navigation makes TACAN, LORAN, maps, etc. obsolete.
  - b. If allowed to use GPS, civilian industry willing to help fund program and launches.
  - c. Funds could be generated by charging users one cent per ten miles traveled.
4. Reevaluate Security Classifications.
  - a. Cannot deny knowledge to others forever.
  - b. Release data when compromised or if foreign acquisition is imminent.
5. Develop Minimum Operational Performance Standards.
6. Put Good People, Willing to Take a Fresh Look, in Decision Making Positions.

General Aviation Manufacturers Association (GAMA)<sup>11</sup>

1. Product Liability is a Huge Problem; Change the Tort System.
2. DoD Will Buy Full-up Aircraft from Foreigners, but Buys Off-the-Shelf U.S. Aircraft and Tries to Refit.
3. Many Technologies are Widely Available Overseas but are still Classified in the U.S.; Relax Classification.

4. Initially Doing Business with the DoD, a Contractor is Treated Like a Criminal (Background checks, interviews, etc.)

5. Most Security Checks are Expensive, Irrelevant, and Soon Out of Date.

6. Composite Technology Should Be Shared With Civilian Aviation Industry.

7. Joint Use of Military Airfields.

a. Lease Agreement Dollars Should Remain on the Base and Not Go to the General Fund; Stifles Incentive.

b. Legislative Changes Needed to Authorize Keeping Lease Agreement Revenues at Local Level.

8. Develop an Airport/Airway Trust Fund to Help Convert Air Bases to Civilian Facilities. (LAX is an Example).

9. Investment Tax Credits are Needed to Create Jobs.

10. Use the Military University Systems to investigate these areas.

#### Aerospace Industries Association (AIA)<sup>12</sup>

1. The U.S. government and the aerospace industry must forge a new partnership so that the United States can maintain its preeminent position in global aerospace markets. Working together, industry and government can

a. revamp technology transfer regulations

b. accommodate entry of former Eastern bloc countries into Western aerospace markets

c. provide an overall policy framework for defense trade

d. assure export financing for both commercial and military aerospace products, and

e. promote U.S. aerospace products worldwide

2. Defense requirements will no longer drive a large share of aerospace innovation; technical breakthroughs will more often come from commercial markets. Key Technologies is an industry-led cooperative effort, with government and university participants, to develop strategic plans to support technologies most important to the aerospace industry that can ensure industrial competitiveness into the 21st century.

3. As the defense budget continues to decrease and contractors face tight fiscal constraints, both government and industry need to improve and streamline the acquisition system and regulations. Needed steps in this direction include:

a. eliminating redundant government oversight

b. industry participating in a negotiated rule making process

c. greater industry involvement in developing new standards and regulations

d. repealing or modifying legislation and regulations that threaten industry's financial health

e. having fewer certification, disclosure, and reporting burdens

f. using multi-year funding

g. providing greater industry access to planning information, and

h. expanding input to decisions affecting the industrial base.

4. Increasing debt from unfavorable profit, procurement, and tax policies has eroded the defense and aerospace industrial base. This will only increase due to the projected steep decline in future DoD budgets. Congress, DoD, and industry must cooperate in bringing about an orderly transition to reduced spending levels and at the same time ensure a viable industrial base that is able to compete for significant global market share, meet emergency surge requirements, and develop, produce, and support systems for U.S. national defense.

5. The progress payments process has become overly complex and is often slow, further exacerbating contractor cash flow problems. Simplifying and streamlining the process will eliminate unnecessary calculations and certifications. Other policy changes are needed to improve the overall financial health of the defense industry, including:

- a. higher progress payment rates
- b. elimination of non-value-added reviews of IR&D/B&P
- c. full allowance of IR&D/B&P costs
- d. limitation of recoupment of nonrecurring costs to export sales of major defense equipment
- e. elimination of fixed-price type contracts for R&D and fixed-price or not-to-exceed options before Full Scale Engineering Development

f. an equitable taxation method to replace the percentage of completion method

6. Government and aerospace industry officials have accepted the concept of a single National Industrial Security Program to replace hundreds of overlapping and redundant programs. The Secretaries of Defense and Energy and the Director of Central Intelligence have made their report to the president detailing how and when this program will be implemented in the government and contractor communities. Implementation will include

- a. a single-scope personnel security background
- b. program operating manual
- c. FAR change package
- d. program compliance review, and
- e. reconciliation and modification of laws, regulations, and policies

Air Transport Association (ATA)<sup>13</sup>

- 1. Civil Reserve Air Fleet (CRAF)
  - a. incentives needed to get carriers to participate in CRAF; totality of compensation favors government
  - b. many who participated in Desert Storm came home to a bankrupt airline; many CRAF participants no longer exist
  - c. some lost markets and customers; competitors were free to harvest market
  - d. for some, the reward for participation in CRAF was extinction



e. need incentives in peacetime to help prepare for war

- promise of peacetime business

- veterans preference, VA benefits, adjusted pay

## 2. Cargo Loading

a. DoD must find ways to reduce cargo loading inefficiencies

- since Dover AFB was backlogged, Federal Express trucked cargo to JFK

- it is alleged the USAF did not do it because it did not show military utilization

- Delta wanted to establish a hub at Frankfurt and use smaller capacity, but more efficient aircraft

  - high overhead for waiting on the ground

  - civilian scheduling expertise ignored

  - civilians were asked to participate, but USAF was reluctant to use the resource when offered

## 3. National Airlift Policy

a. DoD stonewalling efforts to date

- how do we run a CRAF and a viable airline industry at the same time?

- civilians wish to be part of the decision making process; believe they have much to offer, but are ignored

## 4. Capital Formulation Issues

a. aircraft that fly international routes should get full, not half depreciation; it discourages leasing companies from financing wide-body aircraft

b. alternative minimum tax in the present recession causes those affected to borrow to pay tax

c. aircraft industry is the largest contributor to the nation's positive balance of payments in overall trade computations; most wide-body purchases now by foreigners

d. investment tax credits should apply to CRAF equipment and aircraft

#### 5. Airfields

a. civilians covet military facilities, but DoD has not been enthusiastic in joint use

b. greatest needs in San Diego, LA basin, Florida, New York, and Boston

c. use and landing fees could be imposed to generate revenues

#### 6. Advanced Materials/Composites

a. cooperation should be arranged in corrosion control of aircraft; military thought to do a better job overall

b. give depot facilities IR&D funding to develop technologies

- everything a depot does has an application in the civilian world

#### 7. Satellites

a. Global Positioning System (GPS) has great application in the civilian aircraft industry

b. airlines can fund participation through mileage fees

## 8. Environment

- a. military and civilians should share information
- b. both subject to national, state, and local regulations
- c. good ideas, innovative compliance methods, and noted

discrepancies should be shared; otherwise, everyone is fined for the same infraction

- this problem will only get worse
- DoD and airlines seen as deep pockets by regulators

### Common Deficiencies

There are four areas that received recommendation by three of the five associations interviewed:

1. Joint Use Military Airfields (NBAA, GAMA, and ATA)
2. Share R&D between the DoD and the Civilian Sector (NBAA, GAMA, and ATA)
3. Allow Civilian Aircraft Access to GPS (NBAA, RTCA, and ATA)
4. Revise and Simplify Security Procedures (RTCA, GAMA, and AIA)

At this juncture, the recommendations of the ICAF Defense Industry Studies Program and the civilian trade associations have been examined. In the next chapter, policies that industry considers impediments to growth will be studied.

## CHAPTER V

### POLICY OBSERVATIONS

According to the Standard College Dictionary, a policy is "a course or plan designed to influence future decisions, actions." During the past 45 years, our nation's policies have sought to preserve the freedom and security of the United States through containment of communism. With the recent political and economic collapse of the Soviet Union, the primary threat that influenced our international and domestic policies has drastically diminished. Further, with the projected reductions in our armed forces, defense requirements will not drive a large share of industry innovation and technology breakthroughs. Coupled with increasingly stiff competition from the nations of the Pacific Rim and the European Community, American industry has no choice but to compete internationally. As a result, many policies that enhanced the defense buildup of the 1980s now detract from the continued health, and in some cases, the very survival of portions of the industrial base. At this point, it is appropriate to examine selected policies that industry considers impediments to growth.

### Department of Defense

#### 1. Performance Specifications vs. Design Specifications<sup>14</sup>

The insistence on developing performance rather than design specifications is a policy that adds unnecessary cost to procurement. Historically, the DoD has emphasized the

performance of weapon systems to the exclusion of scheduled delivery and unit cost of systems.<sup>15</sup> Further, it is estimated that the last ten percent of performance generates one-third of the cost and two-thirds of the problems.<sup>16</sup> As a result, the U.S. is getting fewer weapon systems in smaller numbers whose performance is high, but whose cost and delivery dates almost always exceed initial estimates.<sup>17</sup> In the words of former Army Chief of Staff General Edward C. Meyer, "Either we are going to spend ourselves into extinction, or we have to come up with alternative strategies and new ways to allocate resources."<sup>18</sup> Additionally, volumes of documentation are required on new items. In many cases, suitable substitutions already exist at home and abroad that can be obtained for a fraction of the cost of the new item. In summary, design specifications have a greater probability of bringing a weapon system in on time and within budget than performance specifications.

## 2. Late Payments vs. Sustained, Balanced Funding<sup>19</sup>

Though Congress holds budgetary authority, late payment problems from the DoD still exist in this time of reduced budgets. In the words of Bernard L. Schwartz of Loral,

It is tough to intelligently manage a defense company when each year our programs, in which we have dedicated millions of dollars and countless people, are slipped to the right, stretched out, put on hold, cut back, defunded, re-scoped, de-scoped, canceled, and reinstated--dead one day, back the next.<sup>20</sup>

"Turbulence produces work disruption, increases cost, generates delays, deters investment, diverts management attention, undermines accountability, and demotivates employees."<sup>21</sup>

In fact, instability in program budgets is the principal cause of cost growth and schedule slippage.<sup>22</sup> Additionally, today's environment approximates the one Secretary of Defense Robert S. McNamara inherited in early 1961--"More weapon systems were moving through development than could possibly be placed in production."<sup>23</sup> Presently, with too many programs competing for too few resources, the danger is that nothing will be obtained.

### 3. Recoupment of Nonrecurring Research, Development, Test and Evaluation (RDT&E) and Production Costs<sup>24</sup>

Under present DoD recoupment policy, if a manufacturer sells defense equipment abroad, then a surcharge is assessed on sales and equipment, both foreign and domestic. This includes products having at least ten percent of their parts in common with the defense item. Basically, many domestic and commercial sales are taxed when only a tenth of their technology was derived from government funds. The record keeping and threat of liability associated with this policy force the physical separation of commercial and defense activities that otherwise would be combined. As a result, artificially high costs are incurred.

## Congress

### 1. Disarmament Frenzy

Heightened by political rhetoric in a Presidential election year, the pervasive mood in Congress is to further cut the defense budget and apply the "Peace Dividend" to correct the domestic ills of unemployment and the continuing recession. This

stampede of disarmament has caused a shock wave to the nation's economy and left the industrial base in a quandary. Without political support, industry has no choice but to reduce the work force rapidly which only aggravates the unemployment issue.

## 2. Unfavorable Investment Climate

International trade is now conducted primarily by three large blocks of nations--the Pacific Rim, the European Community, and North America. While government and industry cooperation is viewed as fundamental to success in the first two blocks, it is not viewed as important here. As a result, our industrial base must attempt to compete internationally against others who are subsidized, protected by trade barriers, and who receive the political support of their governments.

Our tendency is to meet foreign trade barriers with ones of our own. Unfortunately, each step taken to restrict trade will cause the U.S. to grow more slowly than if there were no restrictions.<sup>25</sup> Many believe the solution lies in the mutual removal of trade restrictions allowing equal access into international markets.<sup>26</sup>

## 3. Research and Development (R&D)

Technological change is so rapid that it is beyond the capacity of any single firm or nation to manage.<sup>27</sup> Today, the federal laboratory system has more than 700 laboratories and accounts for a sixth of the nation's total R&D spending.<sup>28</sup> In particular, the Defense Advanced Research Projects Agency (DARPA) and the National Aeronautics and Space Agency (NASA) focus on

basic technical exploration.<sup>29</sup> Their achievements in computer science, integrated circuits, and communications are well known. But, many of the nation's laboratories are working independently of one another on identical projects. One example is composite materials. Artificial barriers prevent the pooling of resources to simultaneously explore commercial and military applications.

### The Administration

#### 1. Unsupported National Assets

In business, if revenues are not greater than expenses, then bankruptcy ensues. In global trade, if exports are not greater than imports, then the trade deficit grows. If it grows too much, the result is national bankruptcy. Today, three areas make up the bulk of our trade surplus--the aerospace industry, the motion picture industry, and tourism. Left to compete in the international marketplace without government support, we may simply become the entertainers of the rest of the world.

#### 2. Free Market Fallacy

In preparing for combat, the first rule is to stack the advantages in your favor before hostilities commence. By doing so, sometimes hostilities are avoided because the adversary believes he has nothing to gain. Today's international trade competition is grossly skewed in favor of our competitors in the Pacific Rim and the Economic Community. Government subsidies in numerous industries coupled with other barriers to entry allow



our competition to sell on the open market at prices lower than we can match without similar support. Allowed to continue, our market share in many areas will steadily decline and endanger the vitality of our industrial base. No nation ever prospered once its industries were no longer competitive.

In summary, the Department of Defense is not alone in having policies that adversely affect the industrial base. Congress and the Administration are also responsible for some outdated policies. Based on my research, two conclusions will be reached in the next chapter.

## CHAPTER VI

### CONCLUSIONS

For all its problems, the United States is still the predominant power in the world politically, militarily, and economically. But, the world has changed more in the past two years than in the past 45. Many strategies for success that once worked are now irrelevant. Fundamental reassessments are required if the United States desires to retain its position of dominance in world affairs.

1. Without change, decline is inevitable. Within the next ten years, the trade blocks of the Pacific Rim and the European Community will have populations and buying power greater than our own. Each trade block subsidizes its critical industries and provides protection in the form of trade barriers. Unless we meet this economic competition head on, we will slip from our position of leadership globally.

2. We still have time to change. It is much easier to retain a lead rather than try to regain it. The players necessary to implement the change are already in place. However, for change to take place, their national will needs to be focused. Only with the approval of the majority can policy changes succeed.

The research is now complete. The conclusions are stated. It is time to identify the policy options to strengthen the nation's industrial base. In the next chapter, ten policy recommendations are offered.

## CHAPTER VII

### RECOMMENDATIONS

#### 1. Department of Defense

##### A. Allow Joint Use of Selected Military Airfields.

Adopt an attitude to find ways to make joint use work rather than point out the difficulties. Twenty-two military airfields presently allow joint use. Another 122 civilian airfields have military national guard and reserve units as tenant units.<sup>30</sup> The DoD should determine the fair share costs of utilities, facilities, and infrastructure. Adjust schedules to accommodate both military and civilian utilization of airfields. Develop a standing working group of military and civilian leaders to develop solutions.

##### B. Encourage Civilian Use of the Global Positioning System (GPS).

The GPS can be used for navigation and determining location. Instead of charging a flat fee, charge a percentage of a cent per mile based on actual use. The airline industry could easily accommodate GPS. The trucking and railroad industries could use GPS for location determination. The funds generated could replace, maintain, and expand the GPS indefinitely.

##### C. Insist on Design Specifications.

Common hardware, tools, and existing components should be routinely used in the production of end items. This will help to reduce costs and mountains of unnecessary paperwork used to

justify performance. Performance specifications should not take priority over schedule and cost constraints. The marginal returns gained from the last increment of performance do not justify schedule and cost slippages. Block improvements can be accomplished later to boost performance.

D. Revise Policy on Recoupment of Research, Development, Test and Evaluation (RDT&E) Costs.

Encourage RDT&E on products that have both military and commercial application. Only apply the recoupment surcharge if the item is exported. This will 1) simplify the accounting procedures, 2) encourage combining military and commercial RDT&E, and 3) pass the appropriate costs to the export market.

E. Lengthen Competition in the Acquisition Process.

"A trivial amount of money is spent during the concept-exploration phase, and only about 3 percent of the program dollars are spent during the demonstration-validation phase."<sup>31</sup> By having two or more contractors developing prototypes over longer periods of time, the DoD can 1) insist that off-the-shelf components of leading technologies are used, 2) satisfy Congressional demands for better accountability, and 3) prolong the eventual production decision until the weapon system is needed. Technology improvements have a greater chance of finding their way into military hardware if there is sustained funding for the research. Faced with smaller budgets, this may be the only affordable DoD option.

F. Terminate Programs Whose Primary Mission Has Diminished.

Most weapon systems presently in testing and production were based on requirements to counter Cold War threats. Those threats have substantially diminished. Adopt a strategy to modernize existing systems whose new, replacement systems have had a substantial mission change. Ships, submarines, tanks, missiles, and aircraft can be modernized at a fraction of the cost of developing new systems. Only field a new system if its mission at inception is still valid.

Candidates for termination include the B-2 bomber, the Peacekeeper intercontinental ballistic missile, the Small ICBM, the Ohio Class Submarine with D-5 missiles, the Seawolf attack submarine, the F-14 Tomcat, and the M-1 Main Battle Tank.

2. Congress

A. Relax Laws to Allow DoD Research and Development to be Shared with Industry.

The United States will not be able to compete on the global market against trading blocks that subsidize both R&D and production. The European Airbus and the Japanese semiconductor industry are two examples. In our own country, the DoD and industry have both been exploring composite technologies for years. By pooling information, acquisition and production can be accelerated to the benefit of both. Those industries that contribute to the nation's surplus balance of trade are prime candidates for consideration. Much of the work done by the 700

national laboratories should be shared with civilian counterparts to develop commercial applications.

B. Encourage Global Trade.

Instead of flirting with the protectionist sentiments of marginal producers, encourage and facilitate American trade on the global market. Those industries currently seeking international markets have a higher probability of being in business five years from now. Seek business abroad by encouraging reciprocal trade agreements. Lower our trade barriers and encourage other countries to do the same. Industries that are unwilling or unable to trade globally will be at a great disadvantage in the 21st century.

3. The Administration

A. Recognize Selected Industries as National Assets.

It may be too late for the automotive industry, but it is not too late to recognize the national importance of other U.S. industries that contribute to the positive balance of payments. All industries face fierce competition from abroad. Much of that competition receives national subsidies. Industries selected as national assets should be allowed tax incentives, export credits, and other profit enhancing means to level the playing field on the international market. In particular, the aircraft and airlift industries should be declared national assets. Further, the space industry should be allowed and encouraged to pursue launching commercial satellites on military boosters. Finally, the nuclear weapons industry must be protected at all costs.

B. Encourage Foreign Sales by Reducing Trade Barriers.

The United States has numerous tariffs, quotas, and subsidies on goods that protect marginal producers who add little to the positive balance of trade. For example, subsidies on sugar and peanuts protect a few growers, but they increase the price of those items for the rest of the American population. We could import those commodities at bargain prices.

Conversely, exporters of those items would earn the revenues to buy American products. By strengthening the economies of the rest of the world, we ultimately create markets for our own goods and increase the number of jobs for Americans. In short, we cannot complain that there are too many barriers to trade when we are guilty of protectionism on many fronts.

These are the ten recommendations to strengthen the industrial base.

## CHAPTER VIII

### EPILOGUE

This study has identified potential DoD and national policy options to strengthen America's industrial base. For the first time, the recommendations from five years of ICAF's Defense Industry Studies have been evaluated and coupled with the recommendations of industry. While America's attention focused primarily on the military threat from what was the now defunct Soviet Union, an equally sinister international economic threat emerged. The United States is no longer the leader in the sealift and electronics industries. In fact, our ability to compete globally in either industry is highly questionable. The nuclear industry is in limbo. The aircraft and space industries are challenged on several fronts. If a national consensus is not reached and actions taken to strengthen the competitiveness of our industrial base, then others will determine the economic, political, and military course of the United States. And a territory politically controlled by a distant state is the definition of a colony.

Fortunately, there is still time to act. And there is no better time than the present. It is time for the DoD, the Congress, and the Administration to roll up their sleeves and get down to business.



## APPENDIX A

### SPACE

#### 1987 Space DIS Recommendations

1. A bipartisan, multifaceted space program must be developed and championed by an eminent group of national leaders.
2. We must have assured, affordable access to Space.
3. Pursue a multi-vehicle launcher program.
4. Deploy a NASA space station.
5. Pursue the Strategic Defense Initiative.
6. Launch planetary probes.
7. Develop a national space plane.
8. Revitalize the space shuttle program.

#### 1988 Space DIS Recommendations

1. Space must step out of the R&D world and become an accepted member of the operational world.
2. Stability in funding is required.
3. The whole concept of offense/defense must be reexamined.
4. More thought is needed in space commercialization.
5. Commercial space industrial base should offer spin-offs for defense space programs and expand design and manufacturing capabilities.
6. Growth must be nurtured in the commercial space industry to make services and facilities available.
7. Insurance and indemnification issues must be resolved.

#### 1989 Space DIS Recommendations

1. The National Space Council should redirect the balance between manned and unmanned programs due to reduced fiscal levels.
2. Make the Department of Transportation the single point for commercial launch operations.
3. Recognize and promote an active government-private cooperation in order to enhance the U.S. commercial space industry.
4. Develop a cooperative space program with other space powers.
5. Ensure National Security Strategy accounts for West European use of Soviet heavy launch facilities.
6. The President and the Congress must initiate public and technical discussions about the role the U.S. will play in International Space Year (1992).
7. The President must motivate states to improve literacy and scientific expertise.
8. Pursue a multi-vehicle launcher program.
9. Stability in funding is required.

#### 1990 Space DIS Recommendations

1. Modernize and expand space infrastructure.
2. A control capability is required to provide friendly access and deny hostile forces to space.
3. The National Space Council should redirect the balance

between manned and unmanned programs due to substantially reduced fiscal levels.

4. Make the Department of Transportation the single point for commercial launch operations.

5. We must have assured, affordable access to Space.

#### 1991 Space DIS Recommendations

1. Develop a cooperative space program with other space powers.

2. The President must motivate states to improve literacy and scientific expertise.

3. The U.S. must take the lead in development and implementation of a long-range vision for the U.S. in space.

4. The U.S. needs to develop a surge and mobilization capability for space related resources.

5. R&D efforts should focus on reliable and economical access to space through the NASA program of expendable launch vehicles.

6. Pursue creation of an international space organization.

7. The U.S. government should use commercial space resources whenever possible (i.e., commercial satellites for the Navy).

8. The government should develop initiatives for commercialization like tax advantages.

9. Industry teaming should be encouraged.

10. Rework government acquisition regulations so they make sense and do not hamper common sense innovation.

11. Create a satellite and R&D roadmap.

12. Develop standardization concepts for launch vehicles and satellite interfaces.

13. Separate the Space industry from the Aerospace industry in the government industrial reclassification system to facilitate data collection and economic analysis.

14. Develop a joint space operations doctrine.

15. Increase launch pad availability and reduce on-pad processing times for satellites. Move to off-pad vehicle and payload checkout and buildup.

16. Pursue small, tactical satellites and launchers during crisis.

17. Use redundant satellites for the store-on-orbit concept.

18. We must have assured, affordable access to Space.

19. Pursue a multi-vehicle launcher program.

20. Develop the NASA space station.

21. Stability in funding is required.

22. We must nurture the growth of the commercial industry and make services and facilities available.

#### Common Deficiencies

There are three areas that have received recommendation three or more times in the past five years:

1. The U.S. must have assured, affordable access to Space  
(87, 90, and 91)

2. Pursue a multi-vehicle launcher program (87, 89, and 91)

3. Stability in funding is required (88, 89, and 91)

## APPENDIX B

### NUCLEAR

#### 1987 Nuclear DIS Recommendations

1. Move ahead with a new production reactor for the weapons program.
2. Continue modernization of the weapons component production base.
3. Maintain a viable weapons test program to ensure technological leadership.
4. Reverse the current policy on fuel reprocessing.
5. Public perception must be changed concerning nuclear vs. coal and oil.
6. Standardize plant design.
7. Revise regulations to allow early site approval, one-stop licensing, preapproved standardized design, and limits on backfitting.
8. Find acceptable storage for spent fuel.

#### 1988 Nuclear DIS Recommendations

1. Maintain a viable weapons test program to ensure technical leadership.
2. Reverse the current policy on fuel reprocessing.
3. Public perception must be changed concerning nuclear vs. coal and oil.
4. Standardize plant design.
5. Revise regulations to allow early site approval, one-stop

licensing, preapproved standardized design, and limits on backfitting.

#### 1989 Nuclear DIS Recommendations

1. Move ahead with a new production reactor for the weapons program.

2. Continue modernization of the weapons component production base.

3. Maintain a viable weapons test program to ensure technical leadership.

4. Revise current policy on fuel processing.

5. Standardize plant design.

6. Revise regulations to allow early site approval, one-stop licensing, preapproved standardized design, and limits on backfitting.

7. Find acceptable storage for spent fuel.

8. Continue to pursue a permanent storage location for radioactive waste.

9. Develop a program to educate and inform the country on the long-term energy strategy.

10. Restart at least one of the Savannah River reactors.

11. Replace the Rocky Flats plutonium lab and reprocessing facility.

12. Environmental cleanup, a high priority, should be a separate Congressional appropriation.

13. The DOE needs to strengthen inhouse technical capability to ensure it can effectively meet the oversight challenges.

14. Adopt lessons learned in Europe to improve reactor operations and productivity, and make a uniform rate structure.

15. Encourage investment by improving licensing and allowing funding of construction through changes in current utility rates.

#### 1990 Nuclear DIS Recommendations

1. Move ahead with a new production reactor for the weapons program.

2. Continue the modernization of the weapons component production base.

3. There should be closer Department of Energy oversight, but less micro-management.

4. Continue to pursue a permanent storage location for radioactive waste.

5. The National Strategic Policy for energy must be long-range.

6. Develop an incentive plan for awarding industry firms who meet plant and equipment standardization criteria.

7. Develop a program to educate and inform the country on the long-term energy strategy.

#### 1991 Nuclear DIS Recommendations

1. Move ahead with a new production reactor.

2. Continue the modernization of the weapons component production base.

3. Public perception must be changed regarding nuclear vs. coal and energy.

4. Standardize plant design.
5. Revise regulations to allow early site approval, one-stop licensing, preapproved standardized design, and limits on backfitting.
6. Find an acceptable storage location for spent fuel.
7. Continue to pursue permanent storage of radioactive waste.
8. The National Strategic Policy for energy must be long-range.
9. Develop a program to educate and inform the country on the long-term energy strategy.
10. The Secretary of Energy should demand plants establish safety, health, and environmental goals which achieve standards.
11. Cooperate fully with oversight agencies and establish close liaison with commercial nuclear industry efforts.
12. Increased assistance and cooperation between the national laboratories will lead to efficiency and effectiveness.
13. Incorporate into the National Energy Strategy a definitive plan for eliminating all (or a great amount) of foreign dependence.
14. Investigate other nation's abilities to bring reactors on-line in half the time of U.S. reactors and adopt appropriate techniques.
15. Work to ease adversarial relationships between the utilities and the regulators more along European lines.
16. Explore legal means of government-industry cooperation to create a more efficient overall system.



17. Adopt successful public relations campaigns from countries such as the United Kingdom.

#### Common Deficiencies

There are ten areas that have received recommendation three or more times in the past five years:

1. Move ahead with a new production reactor for the weapons program (87,89,90, and 91)
2. Continue modernization of the weapons component production base (87,89,90, and 91)
3. Maintain a viable weapons test program to ensure technological leadership (87,88, and 89)
4. Revise the current policy on fuel reprocessing (87,88, and 89)
5. Public perception must be changed concerning nuclear vs. coal and oil (87,88, and 91)
6. Standardize plant design (87,88,89, and 91)
7. Revise regulations to allow early site approval, one-stop licensing, preapproved standardized design, and limits on backfitting (87,88,89, and 91)
8. Find an acceptable storage location for spent fuel (88, 89, and 91)
9. Continue to pursue a permanent storage location for radioactive waste (89,90, and 91)
10. Develop a program to educate and inform the country on the long-term energy strategy (89,90, and 91)

APPENDIX C  
SEALIFT/AIRLIFT

1987 Sealift/Airlift DIS Recommendations

1. Establish a new maritime policy to revitalize commercial shipping.
2. Pass legislation to encourage shippers to use U.S. flag merchant ships.
3. Scrap World War II vintage ships.
4. Cap the Ready Reserve Fleet at 148 ships.
5. Establish a Merchant Marine Reserve.
6. Containerize the large majority of military equipment and supplies.
7. Add 12" of width to the C-17 to accommodate pallet loading.
8. New Air freight assets should be brought on board; modify new and existing passenger aircraft.
9. Review available wide-body aircraft maintenance space.

1988 Sealift/Airlift DIS Recommendations

1. Cap the Ready Reserve Fleet at 122 ships.
2. Establish a Merchant Marine Reserve.
3. Containerize the large majority of military equipment and supplies.
4. Study container crane vulnerability and obtain spares.
5. Provide equal access to cargos and equitable share of profits.

6. Extend operating subsidy contracts and replacement of vessels covered under those agreements.

7. The government should fund a build and charter program.

8. There should be exceptions to anti-trust legislation to promote communication within the industry.

9. The government should fund R&D in ship design, propulsion, and cargo handling.

10. The Department of Defense should accelerate its initiative to develop a prototype surface effect fast sealift ship (SFS).

11. New air freight assets should be brought on board; modify new and existing passenger aircraft.

12. Funding for the C-17 is a top priority.

13. Increase Civil Reserve Air Fleet (CRAF) participation.

14. Analyze levels of attrition and their impact.

15. Procure special material handling equipment for airports.

#### 1989 Sealift/Airlift DIS Recommendations

1. Establish a new maritime policy to revitalize commercial shipping.

2. Pass legislation to encourage shippers to use U.S. flag merchant ships.

3. Establish a Merchant Marine Fleet.

4. Create a senior level maritime policy position within the executive branch.

5. Funding for the C-17 is a top priority.

#### 1990 Sealift/Airlift DIS Recommendations

1. Establish a Merchant Marine Reserve.

2. The Policy Coordinating Committee on Emergency Preparedness and Mobilization Planning does not have a mandate for action.

3. Keep a warm production base for aircraft.

4. Prohibit restrictive gate leasing.

5. Become more productive in planning airport capability.

#### 1991 Sealift/Airlift DIS Recommendations

1. Cap the Ready Reserve Fleet at 150 ships.

2. Establish a Merchant Marine Reserve.

3. Change the Merchant Marine Act of 1936 to permit purchase of foreign ships to operate under U.S. flag.

4. The Navy should design a military useful ship for the Ready Reserve Fleet and contract with U.S. shipyards to build the first lot.

5. The U.S. should ensure U.S. trade negotiators are not adversely affected by European Community '92.

6. The Department of Transportation and the Department of Defense should work with the Civil Reserve Air Fleet to redesign the program to meet future needs.

7. Revise incentive program and activation procedures.

#### Common Deficiencies

There are only two areas that have received recommendation three or more times in the past five years:

1. Establish a Merchant Marine Reserve (87,88,89,90, and 91)

2. Cap the Ready Reserve Fleet between 122 and 150 ships  
(87,88, and 91)

APPENDIX D  
ELECTRONICS

1987 Electronics DIS Recommendations

1. Revise tax laws to restore R&D credits and promote personal savings.
2. Revise educational policies.
3. Revise anti-trust regulation.
4. Reorganize trade policy and enforcement under a single agency.
5. Revise trade policy to promote U.S. competitiveness.
6. Incorporate the latest technology in weapons systems through the use of commercial state of the art products.
7. More R&D dollars are needed for electronics.
8. Support R&D with a specific goal in mind.
9. Identify and selectively eliminate foreign dependence in our weapon systems.
10. Fund semiconductor manufacturing technology products.
11. Establish two sources for critical technologies.
12. Use competition intelligently to avoid foreign dependency.

1988 Electronics DIS Recommendations

1. Reestablish mutual trust between government and industry.
2. Emphasize people--bring them in earlier and keep them longer.
3. Modernization is required to bring manufacturing together.
4. Produce quality products.

5. Trade barriers are not the right solution, but the government must aggressively protect U.S. patented products overseas.

#### 1989 Electronics DIS Recommendations

1. Revise tax laws to restore R&D credits and promote personal savings.

2. Incorporate the latest technology in weapon systems through use of commercial state of the art products.

3. Reestablish mutual trust between government and industry.

4. Reduce government audits and inspections.

5. Use multispec packages only when necessary.

6. Use the Industrial Modernization Program Incentive Program where it makes sense.

7. Implement recommendations of the Packard Commission.

8. Encourage improvements in quality and innovation and mobilization.

9. The Department of Defense should conduct planning to coordinate actions for surge and mobilization.

#### 1990 Electronics DIS Recommendations - None

#### 1991 Electronics DIS Recommendations - None

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